

# Effects of Indoor Air Quality on Children and Young People's Health: Systematic Review Scope

The Royal College of Paediatrics and Child Health (RCPCH) will carry out a systematic review of the literature regarding the health effects of indoor air pollution on infants, children and young people.

## 1. Why is this review needed?

Indoor air pollution remains a Cinderella subject – yet the evidence for its adverse effects on health, especially in pregnancy and children, has accumulated over the last decade. In 2016, the Royal College of Physicians and Royal College of Paediatrics and Child Health published a joint report, *Every breath we take: the lifelong impact of air pollution*. This report highlighted that the evidence of harm to children due to air pollution is not as strong as it is for adults, as this topic is relatively new and under-researched.

The aim of this systematic review is to identify, appraise and synthesise the existing evidence relating to the health effects of indoor air pollution on infants, children and young people. Where possible, recommendations will be made based on the evidence, and key areas where future research is needed will be identified.

## 2. The review

The systematic review will be carried out according to RCPCH processes. This document is the scope – it defines exactly what the review will cover.

### 2.1 What the review will cover

#### 2.1.1 Population

The review will look at the health effects of indoor air pollution on infants, children and young people, aged 0-18 years.

## 2.1.2 Settings

The review will look at the following indoor settings occupied by infants, children and young people:

- Home environments
- Residential care facilities for children and young people
- Secure centres for young people
- School settings – including nurseries and pre-schools

## 2.1.3 Pollutants and exposure

The review will cover the following indoor airborne pollutants, including those resulting from outdoor pollutant ingress:

- Oxides of nitrogen
- Carbon dioxide
- Carbon monoxide – excluding acute exposure as this is a well-established serious hazard to human health
- Ozone
- Particulate matter
- Volatile organic compounds
- Aldehydes
- Secondary organic aerosols
- Terpenes
- Polycyclic aromatic hydrocarbons
- Perfluoroalkyl substances
- Flame retardants
- Phthalates
- Biological materials (e.g. allergens from house-dust mites, animal dander, mould and pollen; and bioaerosols such as endotoxins, bacteria, viruses and fungi)
- Biocides
- Moisture
- Temperature
- Mineral dusts and fibres
- Methane
- Lead
- Combined effects of any of the above

Along with exposure at ages 0-18 years, the review will also consider exposure during the prenatal period. Inhalation, ingestion and dermal absorption will be considered as routes of exposure.

## **2.1.4 Health effects**

The review will cover outcomes and effects relating to physical and mental health.

## **2.2 What the review will not cover**

### **2.2.1 Population**

The review will not cover the effects of indoor air pollution on adults, maternal health or foetal development.

### **2.2.2 Pollutants and exposure**

The review will not cover the pollutants listed below. These are well-established serious hazards to human health, and as such have associated UK legislation.

- Tobacco smoke
- Radon
- Asbestos

The review will not cover modifying factors or interventions, such as ventilation and air cleaning measures.

### **2.2.3 Effects**

As agreed by the Working Group, the review will not cover effects or outcomes relating to:

- Communicable diseases
- Personal wellbeing
- Educational attainment or behaviour

## **3. Status**

This is the final systematic review scope. It was developed by the project Working Group with input from the Technical Advisory Group and stakeholder consultation.